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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,535	08/09/2001	Charles A. Shaffer	05272.00002	1980
22907	7590	10/06/2003	EXAMINER	
BANNER & WITCOFF 1001 G STREET N W SUITE 1100 WASHINGTON, DC 20001			FISCHER, JUSTIN R	
			ART UNIT	PAPER NUMBER
			1733	

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/924,535	<b>Applicant(s)</b> SHAFFER, CHARLES A.	
	<b>Examiner</b> Justin R Fischer	<b>Art Unit</b> 1733	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 August 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 and 17 is/are allowed.
- 6) ☒ Claim(s) 1-15 and 18-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8 and 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 8, the language "the primary grinder" appears in line 1. There is insufficient antecedent basis for this limitation in the claim. In this instance, claim 8 only requires a single "grinding device" as set forth in independent claim 1. It is suggested that claim 8 be amended to define "the grinding device" instead of "the primary grinder". Alternatively, the independent claim could be amended to define a primary and secondary grinder in a similar manner to that defined in claim 3.

Regarding claims 13 and 14, the language "said injector" appears in line 1. There is insufficient antecedent basis for this limitation in the claim. As currently drafted, independent claim 1 defines the following three structural components: a grinding device, a mixer, and a pump- the claim fails to incorporate an "injector". Based on the language of the claim, it appears that the term "injector" is being used to define the assembly used to mix and transfer the liquid virgin polyurethane; however, the term "injector" has also been used to define the structural component 2 in Figure 1 (defined as injector/mixer). It is suggested that the claims be amended to define a system further comprising "an injector" as compared to a system defining "said injector".

With respect to claim 15, the claim includes the following limitation: said pump additionally comprises multiple input sections and a mixer that mixes material received from the injector and mixer. This language does not provide a clear and concise understanding of the claimed invention, particularly since it suggests that the pump comprises a mixer. However, as defined through the original disclosure and independent claim 1, the mixer and pump are separate structural components. Also, the language of claim 15 defines the pump as having multiple input sections. This limitation does not appear to be consistent with the system defined in the specification—the pump is never defined as having such a configuration. It is noted that the mixing apparatus 101 is defined as being suitable for mixing one or more input streams and the third section of the mixer 2 is defined as comprising multiple input devices for multiple streams. It is suggested that applicant clarify the structural components of the claimed system without the introduction of new matter.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 6, 8, and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Crivelli (US 5,258,222). As best depicted in Figure 2, Crivelli teaches a system comprising a grinding device or granulator 20, a mixer 40, 72, and a pump 124. In this instance, the granulator is described as cutting/grinding scrap tires and as such,

it is clearly capable of grinding cured polyurethane. Also, the mixer is described as mixing the ground tire rubber and a liquid binder, and as such, it is clearly capable of mixing ground tire rubber and liquid virgin polyurethane. Lastly, regarding "a pump configured to transfer the material mixed in the mixing device into the core of a tire", the pump of Crivelli transfers the mixed material from said mixer.

Regarding claim 2, Crivelli describes the rubber crumbs or "core bits" as having a particle size between 5 and 50 mesh, which is equivalent to approximately 0.0118 to 0.118 inches (Column 3, Lines 64-66). It is noted that the claim defines an average diameter in cubic inches (particle size of Crivelli would result in a volume within applicant's range assuming spherical orientation).

With respect to claim 3, Crivelli, as best depicted in Figure 2, includes a first shredder 14 or coarse grinder and a second granulator 20 or fine grinder.

Regarding claim 6, the language "the mixer is subdivided into three sections" fails to structurally define the system of the claimed invention. In particular, the mixers of Crivelli can be viewed individually as being formed of three sections.

With respect to claim 8, the material of the granulator or primary grinder is fed into the mixer, wherein the region at which said material is introduced can be viewed as the first section.

Regarding claims 10-12, the mixer 40 and 72 both contain multiple input streams that are capable of introducing unused flatproofing material. In this instance, the third section can be viewed as that section which contains the respective input streams. The claim fails to require any structural limitation that specifically defines the third section as

being anything different from a section that contains at least a single input stream. Also, the mixer 40 and 72 of Crivelli have a certain length and thus are deemed to be "of sufficient length" to ensure homogeneous mixing.

With respect to claims 13 and 14, Crivelli describes an injector comprising at least one holding tank or chamber (binder is maintained in some chamber and added via nozzle 48), a transfer component (nozzle/funnel) connecting said holding tank to a mixing apparatus 40, and a transfer apparatus or conveyor 64 that connects said mixing apparatus and a mixer 72. Regarding claim 14, it is evident from Figure 2 that the "injector" comprises a transfer component that connects the mixing apparatus 40 and the pump 124 (series of conveyors 64, 120).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crivelli as applied in claim 2 above and further in view of Maeda (JP 3-60748). As previously stated, Crivelli describes a system having a grinding device (granulator) for grinding used or scrap rubber tires, a mixing device for mixing ground rubber tires and a liquid binder, and a pump for transferring the mixed materials. While Crivelli fails to define the specific type of "granulator" or grinding device, there are several, well known grinding devices that are extensively used to grind used or scrap rubber tires, including

an elongated screw blade in which particles are initially deposited in a hopper. Maeda provides one example of such a well-known grinding device for scrap rubber tires, as best depicted in Figures 1-4. It is further noted that the elongated screw blade of Maeda similarly includes a screen plate or contacting plate having a plurality of holes that can have a size in accordance to the desired size of the ground rubber particles. Maeda specifically states that such a grinding device allows used tires to be cut properly and efficiently into small pieces, as is desired by Crivelli (particle size of 5-50 mesh is extremely small). As such, it would have been obvious to use the elongated screw blade of Maeda as the "grinding device" or granulator of Crivelli since it represents an extremely well known grinding device for used rubber tires that provides proper and efficient ground rubber particles.

7. Claims 1-3, 6-9, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doan (US 4,970,043) and further in view of Crivelli. As best depicted in Figure 3, Doan is directed to a process in which granular scrap material (used tires) is added with a base material to a mixer or elongated rotatable screw and subsequently removed from a chamber that is disposed adjacent said mixer. While Doan fails to specifically describe a "grinding device", it is clearly evident that a "grinding device" would be necessary if ground rubber from used tires is being supplied to the mixer of Doan as is conventional in the processing of used tires, as shown for example by Crivelli. In particular, the tire rubber must be processed if it is introduced as "granular" scrap rubber, it being noted that Doan suggests that it is desired to reduce the particulate size to promote uniform distribution and mixing (Column 7, Lines 63-68). As

such, one of ordinary skill in the art at the time of the invention would have found it obvious to include a grinding device in the system of Doan. Regarding the "pump" of the claimed invention, Doan states that the mixed material is "removed via line 69, all as would be known to one skilled in the art". While Doan fails to expressly describe a pump, pumps represent an extremely well known and conventional means of removing or transferring material and as such, one of ordinary skill in the art at the time of the invention would have found it obvious to perform the "removing" step of Doan using a pump. It is noted that Doan does include a pump to introduce water into the holding chamber, recognizing the common use of pumps to transfer or convey a given material.

Regarding claim 2, Doan suggests that the size of the materials (granular tire rubber) can be of any desired size and thus, the system of Doan is capable of producing granular tire rubber or core bits in accordance to the limitations of the claimed invention.

With respect to claim 3, the use of multiple grinders to achieve a fine particle size is well known in the tire recovery industry. In particular, a first grinder is generally provided to reduce the large tire particles to a more reasonably particle size and a second grinder is generally provided to grind the reduced particles into a smaller, finer particles as desired. Crivelli provides one example of the known system in which multiple grinders are provided (Figure 2).

Regarding claim 6, Doan defines the mixer as having a first feed section, a second pump section, and a third metering section.

With respect to claim 7, the mixer of Doan is an elongated rotatable screw.



Regarding claim 8, the granular scrap materials (obtained from grinder) are fed into the "feed zone" of Doan.

With respect to claim 9, Doan states that pressure is developed in the respective zones of the mixer (Column 8, Lines 35-41, Column 9, Lines 30-40, and Column 10, Lines 20-40).

Regarding claims 18 and 19, the elongated rotatable screw of Doan is capable of mixing the respective materials, pressurizing, and transferring the mixed materials. It is additionally noted that the screw of Doan contains an input that receives the ground tire rubber and an output that is capable of transferring the mixed material.

8. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doan and Crivelli as applied in claim 2 above and further in view of Maeda. As previously stated, one of ordinary skill would have readily appreciated and expected a grinding device to be part of the system of Doan since "granular" tire particles are being fed to a mixer. While Crivelli recognizes the general use of grinders or granulators in similar systems, the references fail to suggest the specific grinding device of the claimed invention, that being an elongated screw blade in which particles are initially deposited in a hopper. Maeda provides one example of such a well-known grinding device for scrap rubber tires, as best depicted in Figures 1-4. It is further noted that the elongated screw blade of Maeda similarly includes a screen plate or contacting plate having a plurality of holes that can have a size in accordance to the desired size of the ground rubber particles. Maeda specifically states that such a grinding device allows used tires to be cut properly and efficiently into small pieces, as would be desired in the

system/process of Doan. As such, it would have been obvious to use the elongated screw blade of Maeda as the "grinding device" in the system of Doan in view of Crivelli since it represents an extremely well known grinding device for used rubber tires that provides proper and efficient ground rubber particles.

***Allowable Subject Matter***

9. Claims 16 and 17 are allowed. There was no reference in the prior art search that defined a system for filling a tire comprising a grinder, a mixer, an injector, a pump, an input device, and a pressure sensor attached to said input device. In this instance, a pressure sensor is attached to the input device to avoid the buildup of pressure within the tire cavity- the pressure sensor provides a signal which notifies the user when a predetermined pressure (original equipment manufacture) is reached or automatically terminates the filling of the tire. While multiple prior art references of record provide a system having a grinder, a mixer, an injector, a pump, and an input device, none of the prior art references of record describe the inclusion of a pressure sensor attached to said input device. It is further noted that one of ordinary skill in the art at the time of the invention would not have been motivated to include a pressure sensor according to the claimed invention in the systems of the prior art references of record since the references are not concerned with monitoring the pressure at the claimed location.

10. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art references of record fail to suggest, disclose, or teach a system for filling a tire having a grinding device, a

elongated screw (mixer) capable of pressurizing and transferring mixed material, and a pump, wherein said system further comprises a controller electronically coupled to said grinding device and said elongated screw.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ficker (GB 1,373,155) discloses a process for recycling used pneumatic tires comprising the steps of adding ground/crushed tire particles to a mixer, forming a liquid solution in a mixing apparatus having multiple inlet streams, adding said liquid solution to said mixer, mixing the combination of said liquid solution and said ground/crushed tire particles, and transferring said combination to a multiple screw device.

Rosenbaum (US 5,312,573) discloses a process for using old tires comprising adding ground tires and a thermoplastic solution to a mixer and subsequently transferring said mixture to an extruder unit.

Flanigan (US 5,397,818) is directed to a process for reusing worn rubber tires comprising the steps of combining ground rubber tires and a liquid solution in a mixer and subsequently transferring said mixture via a pump.

Murray (US 5,238,734) teaches a system for reusing worn rubber tire comprising a grinding device, a mixer, and a transfer device in the form of an auger, wherein a liquid solution/binder is added to the mixer along with the ground rubber tires.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Justin Fischer

September 24, 2003

  
Michael W. Ball  
Supervisory Patent Examiner  
Technology Center 1700